

Stravrianopoulos et al.

Serial No.: 10/764,388

Filed: January 23, 2004

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### **REMARKS**

Claims 295-302 have been rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states the following:

Claim 295 shows a structure of a chemiluminescent reagent comprising an aromatic moiety having R and R' substituents. However it is unclear if the R substituent is attached to the ring or if R and R' are linked and form only one substituent attached to the ring.

The indefiniteness rejection is respectfully traversed. As indicated above, Claim 295 has been amended to show the groups R and R' as separate ring substituents.

In view of the foregoing amendment to Claim 295, Applicants respectfully request reconsideration and withdrawal of the indefiniteness rejection of record.

Claim 287-293 are rejected under 35 U.S.C. §102 (b) as being anticipated by Bronstein et al. (5,800,999). The Examiner states the following:

Bronstein et al. discloses a 1, 2-dioxetane compound where, T is a stabilizing group (adamantly). The adamantyl group, spiro-bound, can be substituted at any bridge head carbon, to affect chemiluminescent properties. The remaining carbon of the dioxetane ring bears a OR substituent, wherein R is generally an alkyl or cycloalkyl, although it may be a further aryl group. Preferred embodiments include substituted alkyls, with the substituent including halogenated groups, such as polyhaloalkyl substituents. The remaining valence is occupied by an aryl moiety, preferably phenyl or naphthyl. If naphthyl, particular substitution profiles on the naphthyl ring are preferred. The aryl ring bears at least one substituent, X. In commercially developed dioxetanes, this is an enzyme-cleavable group. For instance, many assays employ an exogenous enzyme, such as alkaline

phosphatase, to ensure reliability of the assay. The enzyme is typically conjugated to a binding ligand, either an antibody, a nucleic acid fragment, or similar binding pair member, which will bind to target substance to be detected. Where the conjugated enzyme is alkaline phosphatase, the enzyme-cleavable group X will be a phosphate. The aryl ring may also bear a substituent Y, which is selected to be either electron donating, or electron withdrawing. Preferred groups include chlorine, alkoxy and heteroaryl, although other groups may be employed. These substitutions further effect chemiluminescent properties, and reaction kinetics.

The anticipation rejection is respectfully traversed. It is believed that Bronstein's patent does not anticipate the present invention because it lacks a material element. More particularly, the reagent of the invention comprises an  $R_1$  group which is a substrate for the enzymatic conversion into  $R_1^*$  which comprises a reactive group  $G_1$ . An unstable light-emitting form of dioxetane is only formed in the present invention when a chemically reactive group  $G_2$  (which is part or  $R_2$ ) participates in an intramolecular chemical reaction with  $G_1$  which has been formed by the enzymatic conversion of  $R_1$  into  $R_1^*$ . In contrast, there is no mention or suggestion in Bronstein et al., that after the enzymatic reaction, an intramolecular conversion could or should take place before forming the unstable dioxetane.

Claim 294 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 294 is dependent on Claim 287. Since Applicants have provided an explanation to support the allowance of Claim 287, then Claim 294 should also be allowed.

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Claims 291 and 299 have been amended to exclude nitrates and nitrites. Claim 292 has been amended to exclude amides, esters, phosphates, carboxylic acids and fatty acids, and to include "esters of phosphates, carboxylic acids or fatty acids". Claim 293 has been amended to exclude esterases, acetylcholinesterases, acid phosphatases, alkaline phosphatases, decarboxylases, lipases, glucosidases, xylosidases and fucosidases. These amendments do not reflect the addition of new matter.

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### **SUMMARY**

In view of the foregoing remarks, Applicants respectfully request reconsideration and withdrawal of the rejections of record of Claims 287-293 and 295-302, and the objection of record of Claim 294. Therefore, Claims 287-302 are presented for further examination.

Early and favorable action is respectfully requested.

No other fee or fees are believed due in connection with this paper. In the event that any fee or fees are due, however, the United States Patent and Trademark Office is hereby authorized to charge any such fee or fees to Deposit Account No. 05-1135, or to credit any overpayment thereto.

If a telephone conversation would further the prosecution of the present application, Applicants' undersigned attorney requests that she be contacted at the number provided below.

Respectfully submitted,



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